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ABSTRACT

To determine the effects of teacher training on day caregivers' instructional methods and to examine children's learning behaviors during training, a study was conducted of 5 African-American caregivers and 60 children from low income families in an urban day care center. The caregivers participated over a 2-year period in the W. E. Think training program, which emphasizes developmentally appropriate practices and concrete experiences for children and involved 2-way feedback, active participation by caregivers as trainers, individual conferences, and mentoring. Qualitative data for the study were collected via participant observations, interviews, and videotapes, while quantitative data on children's cognitive performance were gathered 1 year into the study and again at the end of the project. With respect to caregiver outcomes, the training resulted in improved lesson planning, the use of child-centered instructional strategies, and the use of materials and activities that conformed more to developmentally appropriate practices than before the training. Outcomes for the children included improved verbal and social interactions, cooperation, motivation, independence, and self-esteem. In addition, significant improvements were found in children's cognitive development. (Recommendations for teacher training and 42 references are included.) (BCY)

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PERCEPTIONS OF CHANGE:
THE IMPACT OF INSERVICE TRAINING ON CAREGIVER-TEACHERS AND CHILDREN

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ABSTRACT

The purpose of the present study was to examine the effects of teacher training on urban day caregiver-teachers' instructional methods and to examine the children's learning behaviors during training. Using an ecological framework, emphasis was placed on the perceptions of the caregiver-teachers, and their interactions in a complex setting. The study also investigated the effects of teacher training on the general cognitive abilities of the children.

The study used the single-case study design which documented events using multiple sources of data. Data for the study were collected over a two year period and included qualitative research methods (i.e., participant observation, interviews, and videotaping) and quantitative methods (i.e., a series of one-tailed nonindependent t- tests). Qualitative and quantitative data were then triangulated to identify emergent patterns.

The program trainers utilized strategies including two-way feedback, active participation by the caregiver-teachers in the training, opportunities to incorporate learning into daily practice, follow-up visits, individual conferences, use of the caregiver-teachers as trainers, and mentoring. Exposure to good teaching practices resulted in improved lesson planning, child-centered instructional strategies, and the use of materials and activities that were found to conform more to developmentally appropriate practices than prior to training.

Positive child outcomes reported and observed included improved quality of verbal and social interactions, cooperation, motivation, independence and improved self-esteem. In addition, significant positive differences in cognitive development were found as measured by a general cognitive abilities measure.

Recommendations were made for long-term inservice training for (1) untrained caregiver-teachers and (2) more educated teachers. It was further recommended that future studies should continue to apply an ecological perspective to understand untrained caregiver-teachers; their practices, their motivators, and their needs.

Introduction and Literature Review

In recent decades several cultural and social phenomena have resulted in changes in the American family. One trend is the increase in the number of mothers entering the work force. Another trend is that many children spend some of their childhood in a female-headed household, due to divorce or their mothers never marrying, and chances are that they spend a portion of their childhood in poverty (U.S. Bureau of the Census, 1990). Quality early childhood care and education has become a basic need as large numbers of women enter the work force, either as sole supporter of their family or because of the need for two incomes (Hofferth & Phillips, 1987).

It is advocated that positive effects of quality care are especially crucial for poor children. Unfortunately, low-income children are the least likely to receive quality care even though its impact is significant for children "at risk". With the number of disadvantaged children increasing, it becomes important to study the quality of care they will receive.

Early Childhood Program Quality

Several key indicators of quality child care which result in positive child outcomes include group size, caregiver training and education, staff stability, and positive adult-child interaction (Phillips & Howes, 1987). Research suggests that caregiver training and education show the most consistent links between early education and developmentally appropriate practices (Bredekamp, 1989; Galinsky, 1990; Kisker, Hofferth, Phillips, & Farquhar, 1991; Whitebook, Howes, & Phillips, 1990).

Purpose of the Study

The present study examined the effects of teacher training on urban day caregiver-teachers' instructional methods, and examined the effects on children's learning behaviors in one urban day care center over a period of two years. The study addressed these major research questions pertaining to the effects of teacher training.

1. What changes in the teaching methods of caregiver-teachers occurred (e.g., lesson planning, instructional strategies, use of materials)?

2. What changes in the patterns of teacher/child interaction occurred (e.g., communication, roles)?

3. What changes in the children's involvement in their learning occurred (e.g., motivation, input)?

4. What changes occurred in the children's performance on a general ability measure?

Benefits for Children in Quality Care

Program evaluations indicate that quality child care can be an effective intervention for children from low socioeconomic levels (Berrueta-Clement, Schweinhart, Barnett, Epstein, & Weikart, 1984; McCartney, Scarr, Phillips, & Grajek, 1985). In addition, significant positive effects of the day care experience on performance on standardized tests of intellectual development have been reported (Belsky & Steinberg, 1978; Lazur, Darlington, Murray, Royce, & Snipper, 1982). Other benefits derived from quality care include improved adult/child interaction, a more child-centered curriculum, and a more effective learning environment (Good & Brophy, 1991).

Teacher Knowledge and Preparation

Teacher knowledge of appropriate practices is more dependent on training in child development or early childhood education than on length of employment or other education (Bredekamp, 1989; Phillips & Howes, 1987; Whitebook et al., 1990). Research has shown support for the conclusion that training is associated with quality care (Clarke-Stewart & Gruber, 1984) and that caregiver-teachers with more child related training are more positive and more responsive in their interactions with children (Howes, 1983). Since teacher training has been an indicator of quality, a growing concern regarding teacher training and education has developed.

Inservice Training

One strategy for improving the quality of early childhood programs is staff development through inservice training (Abbott-Shim, 1990; High/Scope Resource, 1992; Jorde-Bloom, Sheerer, Richard, & Britz, 1991). Although one-day and one-hour workshops are two common

methods employed, several problems related to this type of service delivery have been identified: training topics are not integrated in any logical fashion, topics are presented with a one-time format and not geared to adult learning, motivation to incorporate the learning into the program is low, theory is not accompanied by specific classroom application, and follow-up, evaluation, and additional information on resources are absent (Abbott-Shim, 1990; High/Scope, 1992).

Recommendations for a more valid inservice training model suggest viewing the child care center as an organization with interacting parts which contribute to the dynamics of change (Jorde-Bloom, Sheerer, & Britz, 1991). Inservice training should be designed to assess organization needs and individual needs, and that staff development should be linked to a career ladder. Additional recommendations are a needs assessment survey, availability of resources, and a consultant who addresses the training needs (Abbott-Shim, 1990; High/Scope, 1992).

Teacher Training

Ormrod (1990) identified several assumptions which may indicate teacher change in their expertise or awareness: trained teachers are aware of what children learn and how they learn it, they are aware of the child's developmental level, and understand how information is organized and how this information relates to previously learned information. Trained teachers will encourage children to be actively involved and to make decisions about their own learning.

One can view Ormrod's (1990) assumptions about trained teachers as part of a complex and interacting system rather than one individual performing one behavior. In a study involving teacher training, the entire context of development should be considered with an emphasis on the interconnection between the person and the environment in the process of human development.

Drawing heavily on the work of Lewin (1935), an ecological approach for human development is defined by Bronfenbrenner (1979). An adaptation of Bronfenbrenner's ecological approach can be used to study each piece of teacher or child behavior as a result of an interaction within a system. This definition sees the developing person as an active participant in the developmental process, and not as a passive recipient. In this study, this concept was

extended to the day care center and examined how the caregiver-teachers and the children in the day care center interacted with, as well as examined how they interacted with other, broader aspects of the world in which the day care center functioned.

The most important element of Bronfenbrenner's ecological framework is his emphasis on the perceptions of those being studied. The individual develops as a result of the perceived interaction of activities, roles and relationships which occur in a setting, over a period of time (McMillan, 1990).

Background of the Study

This study evolved from a larger study conducted by the Barbara K. Lipman Early Childhood Research Institute. The larger study was designed to determine the impact of a thinking skills program on preschool-age children's literacy development, problem-solving, general cognitive abilities and self-concept. The program implemented was the W. E. Think: An Approach to Developing Young Thinkers (Woolner & Etheridge, 1989). The duration of the project was from November, 1989 to May, 1991. The larger study included the three day care centers under the umbrella of a comprehensive social agency. The present study involved the day care center which received the longer, more intensive training. The children in this center showed significant gains in the areas of cognitive development in the second year of training compared to the children in the other two centers (Etheridge, Feng & McLean, 1991). This significant gain was reason for further study.

The W. E. Think program was an instructional approach designed to develop children's thinking skills. The program's goals included involving children in the learning process, allowing opportunities for children to transfer thinking skills from one situation to another, to match their intellectual abilities with appropriate academic tasks, and to integrate all subject matter into the daily program. The program recognized the interrelationship between children's intellectual development, the day care center curriculum and the teacher's instructional skills (Woolner, 1990). Implementation of this program included a teacher training component, geared

toward integrating the on-going curriculum of the day care center and principles of The W. E. Think Program.

W. E. Think Model

The type and nature of the W.E. Think training included on-going field training, curriculum materials and continuous feedback. The W. E. Think program conformed to developmentally appropriate practices (Bredekamp, 1987) in that the training emphasized concrete experiences for the children and that children learn by experimenting with materials, ideas, equipment, and problems (Woolner, 1990).

W. E. Think program viewed thinking skills and basic content as two distinct sets. Content, as defined by W.E. Think, is the essential knowledge in a content area and can be taught directly. In contrast, thinking skills are defined as the fundamental abilities that a child must learn to use knowledge effectively. The W.E. Think program identified five categories of thinking skills: classifying, comprehending, sequencing, observing, and communicating. Through opportunities to manipulate, explore, and discover, the W.E. Think program gives children the opportunity to develop their thinking abilities.

Some knowledge a child must learn is arbitrary knowledge, or that which is developed by mankind (Wadsworth, 1984). It includes knowledge of rules, laws, morals, values, ethics, and language systems. This knowledge evolves within a culture and cannot be extracted from actions on objects. Montessori adapted Sequin's method for obtaining an association for an object and its corresponding term (Montessori, 1967). W.E. Think teaches arbitrary knowledge directly by using Montessori's three period lesson.

Instructional Strategies

The W.E. Think program emphasizes children constructing their own knowledge (Forman & Kuschner, 1983; Ginsburg, 1983; Kamii, 1985a; Kamii, 1985b). To encourage this construction, the program uses a variety of instructional strategies including language arts approach for language development, the problem solving approach to teach mathematics,

questioning strategies, a unit of interest approach, learning centers, and small group participation.

Language development

The W.E. Think program uses real life experiences for stories, charts and drawing. The authors believe that drawing, telling and dictating stories will develop children's communication skills as well as other thinking skills. All instruction begins with that which is familiar to children and has meaning to them. Structured language activities were included in each day's lesson plans.

Problem Solving Approach

At the preschool level, the W.E. Think program emphasizes prenumber activities that children must learn before they understand abstract math concepts. The prenumber activities include using the thinking skills classifying, comparing and ordering. Each activity is presented to match the age and individual developmental level of the child (Bredekamp, 1987). Problem solving which involves the children's daily experiences are promoted.

Questioning

The questioning techniques of the W.E. Think program are used as an instructional tool for the teachers. The teachers use different types of questioning for specific purposes whether addressed to the whole group or to an individual. According to the W. E. Think developers, good questions can stimulate thinking and be used as a classroom management tool.

Unit of Interest

This program uses the unit of interest to focus on the experiences of the child and to familiarize them with current events. A unit involves a theme, a problem, or a purpose and includes a variety of instructional activities. The unit involves an integration of the content areas: science, art, language arts, music, math, history, geography, and dance.

Learning Centers

Learning centers provide children with the opportunity to work independently of the teacher, to interact with other children, and to learn at their own pace. The teacher can interact

with children to facilitate their learning when necessary. Learning centers within the W. E. Think framework provide opportunities for children to practice their thinking skills and to develop socialization skills.

Small Group Participation

Small group participation creates high interest and is motivating. Each child participates, gets more individual attention and gets more frequent feedback. The W. E. Think program recommends no more than 5 children in a group.

Caregiver-Teacher Training

The training involved three elements: (1) group training, (2) individual conferences, and (3) the caregiver-teachers acting as trainers.

Group training. An initial teacher orientation described the general training program which consisted of group meetings and individual conferences. In addition, parent permission forms were discussed and a parent orientation meeting was set. The training began with an intensive week of training. The day care center teachers, two trainers and two graduate assistants met for five teaching days at the main office of the agency. A draft of the W. E. Think: An Approach to Developing Young Children's Thinking manual was distributed to the caregiver-teachers. The manual described in detail the W. E. Think Approach. Training sessions included how thinking skills were categorized and defined according to the W. E. Think Approach (Woolner & Etheridge, 1989) and video-tapes were shown which modeled the language experience approach and the problem-solving approach.

The trainers emphasized several areas: planning, age- and individually appropriate activities, organizing the curriculum around a series of units of interest and literacy development. Various literature and handouts were made available to the caregiver-teachers (Bredekamp, 1987; Galinsky, 1989; Schikendanz, 1989; Thomas, 1987).

Individual Conferences. Individual conferences were conducted by the trainers. These included observation and discussion of the weekly and daily lesson plan. The caregiver-teachers

were responsible for their ideas and materials. The conferences were mainly to confirm ideas, make further suggestions, and for the trainer and caregiver-teacher to communicate and share ideas concerning the effectiveness of the program and how it could be improved.

Caregiver-Teachers as Trainers. A unique element of this training was that the trainees acted as trainers. The caregiver-teachers presented at several early childhood conferences: regional, statewide, and local. The caregiver-teachers also presented at workshops for their peers within the community agency.

Research Design

Case Study

Several elements of the case study, suggested by Yin (1989), have been used to ensure the validity and reliability of this study: multiple sources of evidence, establishing a chain of evidence, and by requesting the key informants or subjects to review the drafts of the case study report. Multiple sources of evidence included interviews, observations, and documents. Reliability was addressed by the development of a case study data base with documents which can be retrieved and examined by other researchers (e.g., NS 2-1-90 - Needs Survey Feb. 1, 1990).

Data analysis addressed internal validity by employing the cluster matrix technique, a time-ordered matrix technique, and an effects matrix technique (Miles & Huberman, 1984). By analyzing the data in stages and by using several techniques, the researcher dealt with the overall problem of making inferences and the more specific prob'em of internal validity. Ecological validity (Bronfenbrenner, 1979) was preserved as the observer/investigator had extensive training and experience in the preschool setting, participated in the training sessions with the subjects as a participant/observer (Spradley, 1980), and remained in the setting being studied for an extended period of time (Cole & Schribner, 1974).

Subjects

The subjects for this study included five caregiver-teachers and 60 children attending the day care center. The teaching staff consisted of one male and four females ranging in age from 29 to 43 years. All teachers were African-American. The length of employment at the day care center ranged from less than one year to 15 years (M = 6.0 years). Educational backgrounds varied from a high school education to two years of college. None of the teachers held a teaching certificate or had professional training in child development. A high school diploma was the only requirement for employment at the day care center.

As reported by the lead teacher, 96% of the children lived with a single parent and met DHS guidelines for low income families. The maximum number of children enrolled in the day care center was 60 children, with approximately an equal number of male and female students. The children who attended the day care center ranged in age from 36 to 66 months, and all were African- American. A pre- and post-test of the general cognitive abilities measure was administered to 47 children (18 male and 29 female), ranging in age from 38 to 60 months (M = 50.3 months).

Instrumentation

McCarthy Scale of Children's Abilities (MSCA) is a full scale cognitive measure appropriate for children ages 2.5 to 8.5 years (McCarthy, 1972). The test consists of 18 subtests that make up six scales: Verbal, Perceptual-Performance, Quantitative, Memory, Motor, and a General Cognitive Index (GCI). The GCI is a composite of the Verbal, Perceptual-Performance, and the Quantitative scales and has a standard score (M = 100, SD = 16). The Scale Indexes for the Verbal, Perceptual-Performance, Quantitative, Motor and Memory Scales are standard scores (M = 50, SD = 10). The MSCA meets the standards for technical adequacy, the test appears to be nondiscriminatory with regard to race, and is interesting to young children.

Techniques for Data Collection

The observer/researcher participated in the program as an assistant which allowed broad access to classrooms and training sessions. Participant observation, interview data, and document collection began in November, 1989 and continued through May, 1991 to record the effects of the teacher training.

The researcher made two types of observations: grand tour observations of the center, and focused observations of teaching episodes. Abbreviated field notes were expanded with details and transcribed as field notes within 24 hours of the observation. Observations averaged fourteen per teacher or one observation every three weeks. A typical observation of a teaching episode provided information about types of materials and activities used in a lesson as well as their uses in the classroom, room arrangement, student grouping arrangements, teaching methods employed, and teacher/student interactions. In addition, videotaped observations provided the observer with examples of teaching episodes from various areas of the curriculum.

The researcher conducted both formal and informal interviews. Formal interviews were tape recorded with subject permission and lasted approximately 30-45 minutes. Questions related to interviewees' perceptions of the training and their roles in it. The researcher conducted formal interviews with five caregiver-teachers, the lead teacher, the supervisor, and the three trainers involved in the program, for a total of 22 interviews. An interview protocol guided each interview. Informal interviews occurred as opportunities permitted before or after observations.

Various documents relevant to center operations and training were examined as data sources. These included teacher training schedules, monthly curriculum planning schedules, and sections of the teacher training manual. Documents also included a demographics information sheet given to the teachers prior to training, a Needs Assessment Survey adopted from Abbott-Shim (1990), and a parent information sheet and questionnaire collected during the first months of training.

MSCA administration. The MSCA was administered in November, 1990 and in May, 1991. As a check of the examiners trained by the researcher, the percent of agreement between

the trainer and examiner was calculated. Scorer/rater agreement was 92.5%. Tests were administered as outlined in the MSCA manual. All protocols were checked for accuracy and/or clerical errors. A simple one-way analysis of variance was conducted for the five examiners regarding the scales of MSCA to determine examiner bias. This preliminary analysis showed no significant differences and no interactions between examiner ratings.

Techniques for Data Analysis

According to Miles and Huberman (1984), analysis consists of three concurrent flows of activity: data reduction, data display, and conclusion drawing/verification. The first stage involved organizing the interview data for data reduction. For the purposes of this study, a start list of codes was derived from the general objectives of the interview questions (Miles & Huberman, 1984). This list was expanded and revised after interview data was collected to reflect the categories that were used during data reduction (Glaser, 1978).

The second technique for data reduction was qualitative analysis documentation (Miles & Huberman, 1984). Procedures used to analyze the data were documented and analysis operations (e.g., CLAS - classifying; SUM - summarizing phrases; MET - generating metaphors) were coded on a form to prepare the data for analysis.

The second stage of analysis was data display. The coded data were parceled into matrix charts - a cluster matrix (i.e., major themes of interview data), a time-ordered matrix (i.e. teachers' perceptions of change during training), and an effects matrix (i.e., direct and indirect effects of the program on the children). In the final stage, the data (i.e., observations, interviews, and documentation) were triangulated to verify or disconfirm emergent patterns (Mathieson, 1988; Miles & Huberman, 1984). These stages of analysis related to guiding questions 1, 2, and 3 of this study: changes in teaching methods; changes in teacher/child interactions; and changes in children's learning behaviors.

t-Test analysis. The MSCA analysis determined whether a significant difference existed between the pre- and post-test mean GCIs and the mean Index scores of the 47 students who

completed an academic year with the trained teachers (i. e., Verbal, Perceptual-Performance, and Quantitative). A series of one-tailed nonindependent t-tests was performed. These data related to guiding question 4: changes in the children's performance on a general cognitive abilities measure.

Perceptions of Change

Question 1: What changes in the teaching methods of caregiver-teachers occurred?

Lesson planning was reported as one of the most stressful changes for the caregiver-teachers. Prior to training, four teachers indicated on a needs assessment survey that determining what to teach their class was a primary concern (NS 2-1-90). On several occasions in the beginning weeks of the program implementation the observer/researcher was approached by the teachers regarding the lesson plan. The teachers expressed their concern with comments such as "I'm not sure", "Is this all right?", "Will this work?" (LE 1-25-90, 2-1-90, 2-5-90). One teacher explained, "What scared us about this was the lesson plan. I think that is where the stress came in, trying to do the lesson plan. Before [the training], we followed a unit, but did not have a lesson plan as such. In a way, knowing what you need to do is good . . . " (I-S 7-10-90, p. 3).

During the training program, each caregiver-teacher was responsible for his or her own lesson planning and was provided constant feedback regarding developmentally appropriate practices. Teachers planned specific lessons with regard to the age and individual needs of their children. After the first six months, teachers reported less stress as they gained more experience writing their lesson plans. Observations showed evidence of unit planning, related instructional activities, and integration of content areas such as art, language arts, and math.

Another important element of teacher change involved the teaching strategies employed by the caregiver-teachers. Prior to training all teachers reported directly or inferred a basic skills curriculum using highly structured abstract materials. Instructional strategies included pencil and paper tasks and abstract materials such as worksheets, ditto sheets, and flashcards. Large group instruction was highly teacher directive with few choices given to the children. Instruction was

primarily delivered as drill and practice of isolated skills such as counting, singing the alphabet song, and recognizing single letters. Other skills included circling items on a worksheet or coloring inside predefined lines. The following is an excerpt from field notes taken during a grand tour observation of the day care center.

> The noise level is very high Two groups of children, 4 and 5 year olds, are seated at child-size tables with nothing in front of them. Two other groups of children, 3 and 4 year olds, are seated each with a page from a Weekly Reader and a pencil in hand. I move closer to the youngest group of children. I can barely hear the teacher's directions over the noise. She is explaining how to mark the correct answer to the question on the worksheet. Three children closest to the teacher are looking at her. Two boys are sweeping the floor with their hands, each with half of his body in the chair, the other half floating in air. One child appears to be sleeping, his head placed in his folded arms. Two other children are making scribbling marks on their paper. The teacher continues to explain. The lesson ends. I look at the Weekly Readers. The children marked on the worksheets in several incorrect places. (GT 1-15-90, p.1)

This example was typical of the expectations the teachers held for their children. This lesson was primarily for skill development, matching two pictures together. The teacher's direct instruction included directions that were difficult to hear. It did not include materials that would attract a 3-year-old's attention. Further, the activity was not related to the children's background and experience. Consequently, the lesson was meaningless to the children and motivation was a problem. None of the children drew the straight lines matching the required items. This could have been due to not understanding the directions or not having the fine motor skills to complete the task. A second example, over a year later shows a change in teacher practices:

> As I walk into the center, the noise level is a constant buzz, later I even notice a period of silence. A teacher, working with the 3-year-olds, discusses the procedure to use if a child's pants caught fire. One of the children in the group recently experienced a fire in the home. The teacher of the 4-year-olds group discusses how to dial the telephone in case of an emergency. The children are role playing and rehearsing with the aid of a real

telephone. The teacher for the 5- year-olds takes dictation and the group writes a story. The children in each group are engaged in the lesson. (GT 1-25-91, p. 1)

The topics of these lessons involved actual experiences of the children. The relationship to actual experience created great interest and motivation to learn. One teacher presented several questions about what to do in case of a fire. This challenged and increased the interaction of the children. This activity was appropriate because each child could respond based on his/her experiences and knowledge about the topic. The low level of noise and the period of silence indicated that students were motivated and on-task. The above example is representative of the changes in the instructional strategies of the caregiver-teachers who participated in this study.

Question 2: What changes in patterns of teacher/child interaction occurred?

In their comments during the interview sessions, the teachers revealed that the stressful effects of the change process were mitigated when they observed positive outcomes from the children. The following quotations are examples of this.

> Well, now the program is going smooth and there is less stress. Before it was like going into the unknown. I didn't know what their abilities were before because I had never explored individual stories or tried to find out what they knew. I discovered that they knew a lot of things that I took for granted and I figured these three year olds really didn't know anything about a particular topic or a unit. But you would be surprised . . . they had a lot of input into a lot of different things that I was not aware of . . . I limited them myself. That was bad . . . I have been surprised each and every day and I say, "Wow, this is great." (I-S 7-10-90, p. 2)

> . . . Now, that is a success program for me. I am beginning to understand their pictures more and they can tell me their stories. . . . Their drawings are getting more familiar and you can understand more what they [the children] say they are. They are putting their thoughts more into picture form. . . . the motivation. (I-D 6-28-90, p. 4)

> I feel way more comfortable than I did before. . . . I came in and the students I had were doing nothing. They could do but they did not want to do. I tried rote with them

> but when I started getting into the program and they were able to start relating to concrete instructional materials, I was able to ask them "what do you want to do?". [I] let them do their own work instead of like the rote way and saying this is the way it should be done. It gave them a better feeling about themselves and what they had done. They can say, "This is something I have done and I feel proud." I feel it is important. (I-J 6-28-90, p. 2)

The teachers observed more positive outcomes, the teacher /child interaction became child-centered, the teachers asked children questions about themselves, and the lessons centered around the experiences of the children. Increased communication between the teacher and child was viewed positively and as a factor which increased production and motivation of the child. A typical comment was:

> Once I presented the ideas, it did something for me and the child. There was more communication between the teacher and the child. They asked more questions and I asked more questions. I could talk to them. I had something to talk about and I had something to give them. (I-L 4-9-91, p. 1)

Question 3: What changes occurred in the children's involvement in their learning?

In the early stages of training, the caregiver-teachers regarded the day care center's role as teaching the basic skills of reading, writing, and arithmetic and their role as one of teaching and enforcing rules and regulations. Later in their responses, the caregiver-teachers stressed allowing children the freedom to learn on their own both socially and cognitively. The teachers reported that the children could accomplish tasks that they previously thought were too difficult.

The teachers began to see their role as a model and facilitator. The children were allowed to take more responsibility for their own learning. As the teachers began to facilitate the children's learning through the environment and varied activities, the teachers reported that the children were taking a more active role in the learning process. The following comments illustrate this point.

> I am listening to the children more and they are listening to me more. I let them make choices and they talk more to me, which is great, and I take the time to listen to the children no matter what they have to tell me. For example, we went for a field trip to see different gardens in the neighborhood. The children discovered a ball on a roof and they were excited about that ball. Back in class, they told me a story about the ball on the roof. They told me the color of the ball and they were excited. Before (training), I stuck to the subject. I didn't let the children change if they wanted to. (I-L 7-2-90, p. 4)

The main theme of this episode was repeated many times in the transcribed field notes of this study. All of the teachers at the child care center made remarks similar to this teacher's report. Teachers' comments included phrases such as "increased creativity in the children", " children show more independent behaviors", "they think for themselves", increased self-esteem", and "their eyes light up now". Direct and indirect effects of the program were reported by the teachers, administrators, trainers and the researcher. Direct effects involved increased learning and motivation for the children while indirect effects included changes in the socialization patterns and behavior patterns of the children. Other indirect effects involve teacher input and the positive effects of this on the learning environment.

Question 4: What changes occurred in the children's performance on a general ability measure?

To determine any changes in the children's performance on the McCarthy Scale of Childrens Abilities pre- and post-test, a series of one-tailed nonindependent *t*-tests was performed on the MCSA General Cognitive Index and subtests: Verbal, Perceptual-Performance, and Quantitative. As shown in Table 1, a significant difference was found between the total group ($n = 47$) pre-and post-test on all scales of the MSCA: GCI, Verbal, Perceptual-Performance and Quantitative.

Table 1

Mean MSCA Scores, Number, and Probability of Children, Pre- and Post Test

Variable	n	Mean	S.D.	S.E.	1-Tail Prob.
Preverbal	47	41.02	9.58	1.39	.001*
Postverbal		45.00	9.48	1.38	
Preperceptual	47	46.25	8.29	1.20	.001*
Post		51.12	9.11	1.32	
Prequantitativ	47	43.91	8.29	1.21	.026*
Post		46.42	8.19	1.19	
PreGCI	47	87.82	12.95	1.89	.001*
PostGCI		96.80	12.52	1.82	

* $p < .05$

Secondary Analysis: Resistance to Change

Resistance to change was a common theme in the data collection. As indicated with the lesson planning - the fear of making a mistake, the sense of "going into the unknown" was reported by the caregiver-teachers. To reach the desired transition, the teachers needed to commit considerable time and energy. At one point during the study, the resistance was strong enough to require a meeting. It was agreed that the caregiver-teachers would take the training seriously and become involved in the process (LE, 1-20-90). Thereafter, the trainers elicited comments and concerns from the teachers. Comments such as, "Tell me about things", and "I want to know if you are having problems understanding" were noted during the training sessions (LE 1-21-90).

Another prominent theme in the data was the development of trust. This is exemplified by the comments of one trainer: "The teachers were intimidated by me and I was intimidated by them. There were so many of them. But we became friends and cared about one another. We saw changes in the teachers and changes in the children" (IW 2-15-91, p. 2). One teacher's comments concerning the relationship between one trainer and the teachers are representative of other reports.

> She asks me how I feel about the program and asks for my suggestions. If I have a problem, I am open and free to go to her for help. She always has it open and free. She asks me to put in input and if I have an idea I tell her and she just says fine and good. But if it is doing something that would not teach the kids to think or using the program, she doesn't say it is wrong. But she does want us to stick to the program. She wants me to pursue the program and do things in order and do all right. I am as interested in doing the program as she is. (IJ 6-10-91, p. 1)

Over time, the caregiver-teachers learned more about the developmentally appropriate practices and became more skillful and comfortable. As one trainer explains her perceptions, "I learned that nondegreed people as well as degreed people get very excited. They are allowed to experiment and explore and they allow children more freedom to explore and they (the teachers) develop a self-confidence. . . . They have more confidence in their ability to teach children than when we began" (IW, 6-20-90). One supervisor who worked with the program in an administrative capacity summarized the resistance:

> One thing about change is that everyone has objections. You fight change with all your might. That is what you do the hardest - try to keep from changing. My teachers were saying, "But they want us to talk about the supermarket for a month. The kids will get bored." This was the first unit we did. Well, when the supermarket unit was over, the teachers knew something more about it. The most impressive thing is a change in the teachers. Everywhere we go, the teachers are collecting things. They are thinking and coming up with creative ways to deal with the children. . . sometimes I just go down there to see what they are doing that is different. . . (I-U 4-10-91, p. 2).

Although over time, changes did occur as noted above, problem areas were observed throughout the duration of the study with the five teachers: (1) frequently, lessons didn't flow or were disorganized, (2) many questions were not age- and individually-appropriate for the developmental level of the child, (3) at times, materials were not gathered and prepared in advance, and (4) children were not observed participating in nondirective socio-dramatic play.

The background knowledge of the teachers required that training be conducted in the most basic areas. As indicated by one trainer's comment: "In the day care centers we have worked with, many of the teachers, with their educational backgrounds, do not have the teacher preparation . . . so we had to spend too much time in basic pedagogical preparation with what is considered good teacher practices" (I-E 7-2-90, p. 2). This perception was also held by the other trainer and asssistant in the program (IW 6-10-90, p. 3; IF 5-10-91, p. 3).

Although, the caregiver-teachers reported the program as successful during the first year of training, the comments of two teachers indicated a return to the more familiar way of teaching after removal of trainer support.

> The only problem I do have. . . they will be well prepared but I do feel like into the program we need to have the alphabet, even if rote is bad, we need to stress somewhere in there the need to know numbers and recognize the alphabets. But I realize the individual stories will give them the alphabet but you need to know that and shapes so we need to do some of the curriculum they have in [kindergarten] and we need to integrate that at some point too. (IS 7-10-90, p. 4)

> Even though the parents didn't say anything to me about paper work like that, I just feel like, I . . . well, it is just that I feel like I would like to do more work like that. (ID 6-28-90, p. 3)

Discussion

Ecological Transition

The child care setting in this study served as a context for development and change within a complex social system. Four conditions of Bronfenbrenner's ecological view were applicable to this study. The first condition stated that change involves the developing person in the immediate setting, as well as the effects of the larger context in which the setting nests (Bronfenbrenner, 1979). In this study, attention was paid to the caregiver-teachers' behaviors and the children's behaviors as they evolved. Attention was also paid to the relationships

between systems. This system interaction affected the caregiver-teachers and children in several ways. The training of the teachers and the testing of the children was initiated because of decisions by the administration. In addition, the trainers from a local university began requesting more involvement of the caregiver-teachers. Furthermore, perceptions of parental concerns affected teacher decisions regarding instructional strategies.

The second condition of Bronfenbrenner's theory (1979) referred to a change in the pattern of activities, roles, and interpersonal relations experienced by the developing persons. In the present study, data analysis showed the changing activities, roles and interpersonal relations of the developing caregiver-teachers and children.

The third condition involved a variety of joint activities (rather than isolated or solitary activities), and the activities occurred in a variety of primary dyads, defined as two people who were emotionally significant in each other's lives (Bronfenbrenner, 1979). A primary dyad constituted a basic unit of analysis. In the present study, the dyad, or two-person system, refers to the new relationships developed between the caregiver-teachers and the trainers, the caregiver-teachers and the children, and the trainers and the children.

Bronfenbrenner also considered time, the fourth condition, as an important element in the developmental process (McMillan, 1990). The changing patterns of behavior of the participants in the present study developed over a two year period. The element of time allowed the dynamics of the training to be observed and the changing patterns to be documented.

Teacher Change

The caregiver-teachers in this study developed and matured as teachers over a period of two years. Their maturity showed through development in several areas including the role of the teacher, lesson planning, and instructional strategies.

Prior to teacher training, the caregiver-teachers taught without the benefit of theory and research in the early childhood field. The teaching was highly directive and inappropriate for the age of the children. It seems that the teachers were consistent with McMillan's (1990)

findings, in that they shaped their practices in terms of their beliefs about how children learn. After training, the extent of teacher change seemed to follow Ormrod's (1990) assumptions indicating teacher awareness. And as the children became more involved in the learning process, the teachers expressed surprise at the information the children were retaining and found motivating. Likewise, the teachers gained confidence by writing plans, thinking creatively, and understanding the needs and capabilities of the children. As they became more empowered and less threatened, they encouraged the children to become more actively involved in the learning process. In the present study, the teacher's role developed from a directive authoritarian role to a child-centered facilitator role. This role change is aligned with what is recommended as developmentally appropriate teaching (Bredekamp, 1987).

Caregiver-teachers were found to have changed their lesson planning. Prior to training, lessons consisted of a basic skills program concentrating on teaching isolated skills through rote strategies. The curriculum revolved around structured abstract materials. Although formal instruction in academic skills was emphasized, the activities were neither age- or individually-appropriate for the developmental age of the children. The curriculum was inappropriate according to guidelines for professional practice (Bredekamp, 1987).

After implementation of the training program, lesson planning became a primary responsibility of the individual caregiver-teachers rather than the responsibility of the lead teacher at the center. As revealed in interviews and observations, lessons were planned to integrate the content areas, were based on the children's experiences, and included materials and manipulatives for individual children. Furthermore, the caregiver-teachers became involved in creating their own activities, making their own materials and they began to explore new resources. It may be inferred that as lesson planning became more child-focused and less teacher-centered, providing a variety of materials and activities became more important to the teachers. This finding is consistent with previous studies where teachers at less teacher-directed

centers were more flexible and offered a greater variety of activities (Belsky & Steinberg, 1978).

Changes were also noted in patterns of the caregiver-teachers' teaching strategies. The teachers moved from using highly structured activities most of the time to preparing the environment for the children to learn through interaction with materials, their peers and the adults present. In addition, the teachers began using small groups or individual instruction much of the time as well as materials and activities which stimulated the children to be more mentally active. It seems clear from teacher interviews and observations that the teacher training was a stimulus for implementing developmentally appropriate activities. That is, as the teachers became more knowledgeable of child development, they adhered to practices more appropriate for the needs of their children. This finding is consistent with previous studies regarding caregiver training (Galinsky, 1990; Kisker et al., 1991), in that better trained teachers showed a more consistent link with early education practices and how children develop.

Resistance to Change

Another pattern identified in this study was resistance to change. There seemed to be three reasons that may have influenced the resistance in the caregiver-teachers: (1) past experiences inhibited change, (2) the lower the level of teacher training, the more extensive the training needed to be, and (3) teacher and parent goals for academic achievement were established without a knowledge of child development. The above three reasons seem to influence the resistance to change and, unless training is followed-up, may result in regression to previous practices. Although the caregiver-teachers implemented innovations during the training program, these three factors: what was done in the past, lack of more extensive training, and inappropriate expectations may negatively effect continued use of appropriate practices and the teachers may return to the "status quo". This is important in that previous child care staffing studies (Whitebook et al., 1990) indicated that the implementation of appropriate practices was dependent upon the amount of staff training and not based on experience alone. In addition,

previous research (Phillips & Howes, 1987) cited the same connection between training and knowledge of appropriate practices.

Child Outcomes

Several positive outcomes were reported by the caregiver-teachers, administration, and trainers and were observed by the researcher. The positive outcomes included social and cognitive gains. Study participants reported that the children were allowed more freedom to do independent activities and that learning was related to their experiences. Small group discussions and teacher's improved questioning skills invited the children to be more verbal, cooperative, and motivated. Caregiver-teachers also reported an improvement in children's' self-esteem. This is consistent with previous studies illustrating improved quality of adult/child interactions associated with teacher techniques and the arrangement of the learning environment (Good & Brophy, 1991).

Abilities measure. The present study found significant differences in the McCarthy Scale of Childrens Abilities (MSCA) pre- and post-test scores. This is congruent with previous research which indicates quality child care can be an effective intervention for children from low socioeconomic levels (Berrueta-Clement, Schweinhart, Barnett, Epstein, & Weikart, 1984; McCartney, Scarr, Phillips, & Grajek, 1985). In addition, this finding is consistent with previous studies in that the negative effects of poverty on the preschool intellectual development lessen when the children attend quality day care centers (Belsky & Steinberg, 1978; Lazar et al., 1982).

Training Strategies

The program trainers utilized several innovative teaching strategies which seemed to contribute to the positive change in the caregiver-teachers and the children involved in this study. The strategies included communication and two-way feedback, active participation by the caregiver-teachers in the training, opportunities to incorporate learning into daily practice,

follow-up visits, individual conferences, the use of the caregiver-teachers as trainers, and mentoring.

It appeared that experiential learning developed as a key element of the training process. The caregiver-teachers experienced elements of the training program (e.g., increased verbal interaction, active rather than passive participation, "hands on" experience, individual feedback) similar to elements which contributed to good teaching practices with young children. These elements were similar to those suggested by other successful inservice training programs (High/Scope Resource, 1992; Jorde-Bloom, Sheerer, Britz, 1991).

Implications

The findings showed that in-service training and staff development could serve as a vehicle to increase the caregiver-teachers' knowledge and produce positive child outcomes. However, as this study suggests, several factors should be considered when developing effective inservice for teachers: (1) the diversity and inequality of education and training among the caregiver-teachers, (2) the wide range of skills and abilities of the caregiver-teachers, (3) the varied expectations the caregiver-teachers have for the children at the day care center, (4) the active involvement of caregiver-teachers and children in the process and (5) the effects of a systems interaction approach.

Considering these factors identified by the present study, the following recommendations are made:

1. Special efforts must be put forth to deal with the problems of untrained caregiver-teachers separately from those of more educated and trained teachers. This should include testing for literacy skills at the time of hiring and continuous on-the-job training with practical application of learning.

2. Based on the time needed for change to occur in the present study, caregiver-teachers with no background in early childhood development should be given a minimum of 60 hours of on the-job-training during the first year of employment in a child care setting. At least eight

hours of compressed training should include a general overview of child development and how children learn. Additional on-the-job training should occur approximately one hour per week.

3. The individual conducting the on-the-job training should be a degreed director or a consultant/specialist in the early childhood field who remains in the setting for an extended period of time and is available for observation, discussion and feedback at least one hour per week. The trainer should also act as mentor for the caregiver-teacher.

4. The on-the-job training should be linked with CDA training and the caregiver-teachers rewarded with the CDA credential and a raise in pay after completion of the first year of employment in the early childhood setting. After the initial year of on-the-job training, further training requirements should follow individual state required child care licensing standards.

5. Although this study involved untrained caregiver-teachers, the findings of this study also point to recommendations for teacher training at all levels:

A. Individual differences in teachers should be recognized during training. Teachers have differing levels of development, skills and knowledge. By including a needs assessment survey of teaching prior to training, teacher training program can be individualized, thus optimizing training effort and teacher outcome.

B. Teachers in training should be given opportunities for immediate practical application of what is being learned. Knowledge of theory and practice in conjunction with practical experience benefits the student or trainee.

C. Constant two-way feedback between trainers and teachers should be used. This allows the teachers opportunities to reflect on their practices and to discuss their reflections. Thus, teachers can more readily begin to realize and understand the connections between what they know and what they do.

D. A mentor should be assigned to the more novice teacher. Mentoring should be an integral part of any training program as it helps develop communication and further discussion.

In summary, it is important to understand that what occurred in this study could be a blueprint for the future. That is, the interaction of the systems must be viewed as a whole which is greater than the sum of its parts. As seen in this study, external influences (i.e., state funding, community action, administrative decisions, parental concerns) played a critical role in defining the immediate situation to each person; whether caregiver-teacher, child, parent, administrator or trainer.

The need for training was indicated by the teaching strategies of the caregiver-teachers in this study, and even though the training was extensive, only moderate progress was achieved. However, this study showed that moderate progress due to teacher training could make a difference in the teachers and the children of an urban day care center serving African-Americans. If quality care is a major concern in the early childhood profession and if teacher education is a major component of quality care, then training programs must be delivered to all caregiver-teachers. This is a first step toward the goal of quality care.

Untrained caregiver-teachers have unique training needs: they work without the benefit of pedagogy which makes their skills different from the more educated teacher, and they receive minimal compensation for their efforts which makes their expectations and motivations different from higher paid workers. Future studies should continue to apply an ecological perspective to understand what is unique about caregiver-teachers in their immediate setting, what influences their practices, what motivates them, and what their needs are. Continued use of qualitative methodologies (i.e., participant observation and interviews) can yield rich descriptive data necessary for true understanding.

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